

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

February 17, 1983

BLRD-50-438/81-16

BLRD-50-439/81-16

U.S. Nuclear Regulatory Commission
Region II

Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - REACTOR BUILDING COOLING FANS -
BLRD-50-438/81-16, BLRD-50-439/81-16 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. W. Wright on January 28, 1981 in accordance with 10 CFR 50.55(e) as NCR 1351. This was followed by our interim reports dated February 27, June 2, September 3, and December 16, 1981 and February 17, May 18, and November 23, 1982. Enclosed is our final report. We consider 10 CFR Part 21 to be applicable to this deficiency.

If you have any questions concerning this matter, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills
L. M. Mills, Manager
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. James McFarland (Enclosure)
Senior Project Manager
Babcock & Wilcox Company
P.O. Box 1260
Lynchburg, Virginia 24505

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
REACTOR BUILDING COOLING FANS
NCR 1351
BLRD-50-438/81-16, BLRD-50-439/81-16
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The reactor building cooling system consists of three integral fan cooling coil units as well as other equipment. Onsite inspection of the fan motors by a service representative of the motor manufacturer (Reliance Electric Motor Company, Cleveland, Ohio) revealed that old grease in the bearings had become hard and that grease was forced onto the motor winding when new grease was pumped into the bearings.

The Reliance service representative also witnessed the regreasing of the motor bearings. It was noted that grease easily purged out of the relief hole with the relief tubing disconnected; but when the tubing was reconnected, grease did not purge properly from the relief tubing. Instead, it passed across the seal and onto the windings. This is because of the fact that the grease relief tubing in these fans is undersized. Also, these fans are required to receive semiannual maintenance to include the purging of bearing grease. This cannot be easily accomplished with the present configuration of grease relief tubing.

The units were purchased from B&W.

Safety Implications

The cited condition could result in inadequate lubrication of the cooling coil fans and a potential fire hazard should the grease on the motor winding catch fire. Either condition could result in a cooling coil fan loss-of-function failure. This could degrade the performance of the reactor building cooling system which could result in an unacceptably harsh environment in the reactor building. This would be a condition adverse to the safety of operations of the plant.

Corrective Action

The fan motors were cleaned in the Reliance shop to remove lubricant from the windings and interior of the motors, the bearings were relubricated, and the motors were returned to the Bellefonte site. The grease relief tubing was removed and discarded. This will allow excess grease to flow readily through the relief hole. Threaded plugs were inserted into the grease relief holes. These plugs will be removed and reinstalled each time the bearings are lubricated. The instruction manual was revised to provide lubrication instructions which define separate requirements for lubricating the motors (1) prior to being placed in service and (2) under operating conditions. The revised instructions define the required frequency of lubrication and the quantity of grease to be added each time. The elimination of the relief tubing and the separate lubrication instructions for idle and operating motors will prevent recurrence of the problem of grease being forced into the motor windings by preventing excessive lubrication.